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Quality Engineering Test Report

SERIES: T-60 60W AC-DC TRIPLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A.T-60A V1 : 5V / 5A B.T-60B V1 : 5V / 5A C.T-60C V1 : 5V / 5A
V2 : 12V / 2.5A V2 : 12V / 2.5A V2 : 15V / 2A
V3 : -5V / 0.5A V3 : -12V / 0.5A V3 : -15V / 0.5A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85~264VAC O/P:FULL LOAD	C:61.68VAC~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: O/P:FULL LOAD A: V1 :±0.5% V2 :±1% V3 :±0.5% B: V1 :±0.5% V2 :±1% V3 :±0.5% C: V1 :±0.5% V2 :±1% V3 :±0.5%	A: V1: +0.12% ~ +0.12% V2: -0.05% ~ +0.41% V3: -0.00% ~ +0.12% B: V1: -0.00% ~ +0.00% V2: -0.05% ~ +0.20% V3: -0.00% ~ +0.00% C: V1: -0.00% ~ +0.00% V2: -0.04% ~ +0.04% V3: -0.00% ~ +0.00%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A: V1 :±1% V2 :±4% V3 :±1% B: V1 :±1% V2 :±4% V3 :±1% C: V1 :±1% V2 :±4% V3 :±1%	A: V1: -0.12% ~ +0.00% V2: -0.26% ~ +0.77% V3: -0.12% ~ +0.12% B: V1: -0.12% ~ +0.00% V2: +0.26% ~ +1.42% V3: -0.00% ~ +0.00% C: V1: -0.12% ~ +0.00% V2: -0.65% ~ +1.09% V3: -0.00% ~ +0.00%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: O/P:20% TO FULL LOAD A: V1 :±2% V2 :±6% V3 :±6% B: V1 :±2% V2 :±6% V3 :±6% C: V1 :±2% V2 :±6% V3 :±6%	A: V1: -0.06% ~ +0.20% V2: -1.20% ~ +4.16% V3: -0.14% ~ +0.24% B: V1: -0.06% ~ +0.30% V2: -1.25% ~ +4.06% V3: +0.725% ~ +0.93% C: V1: -0.12% ~ +0.12% V2: -0.09% ~ +5.50% V3: +0.79% ~ +0.91%	P
5	RIPPLE&NOISE	I/P:230VAC SPEC: O/P:FULL LOAD A: V1 :100mV V2 :100mV V3 :100mV B: V1 :100mV V2 :100mV V3 :100mV C: V1 :100mV V2 :100mV V3 :100mV	A: V1: 29mV V2: 13mV V3: 13mV B: V1: 12mV V2: 14mV V3: 9mV C: V1: 11mV V2: 12mV V3: 13mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC:1A O/P:FULL LOAD	C:0.79A	P
7	MAX. INRUSH CURREN	I/P:230VAC SPEC:60A O/P: FULL LOAD	C:37.7A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: O/P:MIN. LOAD A: V1:-5%~+10% B: V1:-5%~+10% C: V1:-5%~+10%	A: 4.47V~5.78V B: 4.50V~5.78V C: 4.41V~5.82V	P
9	SET UP TIME	I/P:230VAC SPEC:300mS O/P:FULL LOAD	C: 244.92mS	P
10	HOLD UP TIME	I/P:230VAC SPEC:80mS O/P:FULL LOAD	C: 93mS	P
11	EFFICIENCY	I/P:230VAC SPEC: O/P:FULL LOAD A:72% B:72% C:72%	A:72.87% B:72.02% C:73.97%	P

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>12</td><td>OVER LOAD PROTECTION</td><td>I/P:115VAC SPEC:105%~150%
O/P:TESTING</td><td>A:143%
B:137.7%
C:128%</td><td>P</td></tr>
<tr><td>13</td><td>OVER VOLTAGE PROTECTION</td><td>I/P:230VAC SPEC:V1:5.75~6.75V
O/P:FULL LOAD</td><td>A : 6.12V
B : 6.27V
C : 6.13V</td><td>P</td></tr>
<tr><td>14</td><td>GROUND LEAKAGE CURRENT</td><td>I/P:240VAC SPEC:
L-FG--<1mA
N-FG--<1mA</td><td>C: L-FG:1.95mA
N-FG:1.96mA</td><td>P</td></tr>
<tr><td>15</td><td>INSULATION RESISTANCE</td><td>SPEC: O/P-FG 500VDC/100M Ohms MIN.
I/P-O/P 500VDC/100M Ohms MIN.
I/P-FG 500VDC/100M Ohms MIN.</td><td>C: O/P-FG >100M Ohms
I/P-O/P >100M Ohms
I/P-FG >100M Ohms</td><td>P</td></tr>
<tr><td>16</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>SPEC: I/P- O/P: 3000VAC/ 1 min.(10mA CUT-OFF)
I/P - FG: 1500VAC/ 1 min.(10mA CUT-OFF)
O/P - FG: 500VAC/ 1 min.(10mA CUT-OFF)</td><td>C: I/P-O/P :4.31mA
I/P-FG :6.61mA
O/P-FG :2.61mA</td><td>P</td></tr>
<tr><td rowspan="2">17</td><td rowspan="2">EMS TEST</td><td>EFT TEST:
EN50082-1 IEC1000-4-4</td><td>C: CRITERIA A OK</td><td>P</td></tr>
<tr><td>SURGE TEST:
EN50082-1 IEC1000-4-5</td><td>C: CRITERIA A OK</td><td>P</td></tr>
<tr><td>18</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P: FULL LOAD
TA:25.4°C BURN-IN DURATION : 2 hrs</td><td>NON BREAK</td><td>P</td></tr>
<tr><td rowspan="3">19</td><td rowspan="3">ENVIRONMENT TEST
(SAMPLE C:)</td><td>1.LOW TEMPERATURE TEST
I/P:80 VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:-10°C</td><td>AFTER 1.5 hrs
POWER ON OK</td><td rowspan="3">P</td></tr>
<tr><td>2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST
I/P:230VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:43°C</td><td>AFTER 44.25 hrs
NON BREAK</td></tr>
<tr><td>3.ACCELERATED LIFE TEST
I/P:267VAC O/P:FULL LOAD
POWER ON :3 min POWER OFF :5 sec
AMBIENT TEMPERATURE:86.7°C
AMBIENT HUMIDITY:95%</td><td>AFTER 4.25 hrs
NON BREAK</td></tr>
<tr><td>20</td><td>TEMPERATURE RISE TEST T rise OF PARTS</td><td colspan="2">C: I/P :230VAC AFTER 2 hr BURN-IN
O/P :FULL LOAD TA:25.4°C
<table>
<tr><th></th><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td></td><td>BD1</td><td>BRIDGE DIODE</td><td>77.6°C</td><td>52.2°C</td></tr>
<tr><td></td><td>Q1</td><td>MAIN TRANSISTOR</td><td>81.9°C</td><td>56.5°C</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER</td><td>87°C</td><td>61.6°C</td></tr>
<tr><td></td><td>D4</td><td>O/P DIODE</td><td>76.1°C</td><td>50.7°C</td></tr>
<tr><td></td><td>C21</td><td>O/P FILTER CAPACITOR</td><td>80°C</td><td>54.6°C</td></tr>
<tr><td></td><td>L2</td><td>O/P CHOCK</td><td>76°C</td><td>50.6°C</td></tr>
<tr><td></td><td>C5</td><td>I/P FILTER CAPACITOR</td><td>67.1°C</td><td>41.7°C</td></tr>
<tr><td>*</td><td>D1</td><td>FLY DIODE</td><td>92.7°C</td><td>67.3°C</td></tr>
</table></td><td>*
NOTE1</td></tr>
<tr><td>21</td><td>LIFE CYCLE</td><td colspan="2">C: SUPPOSE C21 IS THE MOST CRITICAL COMPONENT
I/P:230VAC O/P:FULL LOAD Ta:25°C Tc21:79.6°C Life: 28659hrs
I/P:230VAC O/P:FULL LOAD Ta:45°C Tc21:88.6°C Life: 15358hrs</td><td>P</td></tr>
<tr><td>22</td><td>CRITICAL COMPONENT RECORD
(FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="3">C: FUSE :3A/250V
BRIDGE DIODE :D3SB60
LINE FILTER :EE-25 TF096C1
TRANSFOMER :EER-35 TF155-1-R1
POWER SWITCHER :2SK727 TO-3P
OUTPUT DIODE :SF10SC4
OUTPUT CAPACITOR :ELNA 2200uF/10V RJH 105°C
INPUT CAPACITOR :JAMICON 150uF/400V 85°C
P.C.B :T-60N-R3 CEM-1 2 OZ SS</td></tr>
</table>

REVIOUS NEXT

DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
19980423	T-60	NOTE1:WORKING TEMPERATURE >=43°C OUTPUT SHOULD DERATING	H.C.LIOU	Max Lin
19990518	T-60C	PASS	H.C.LIOU	Max Lin

REVIOUS